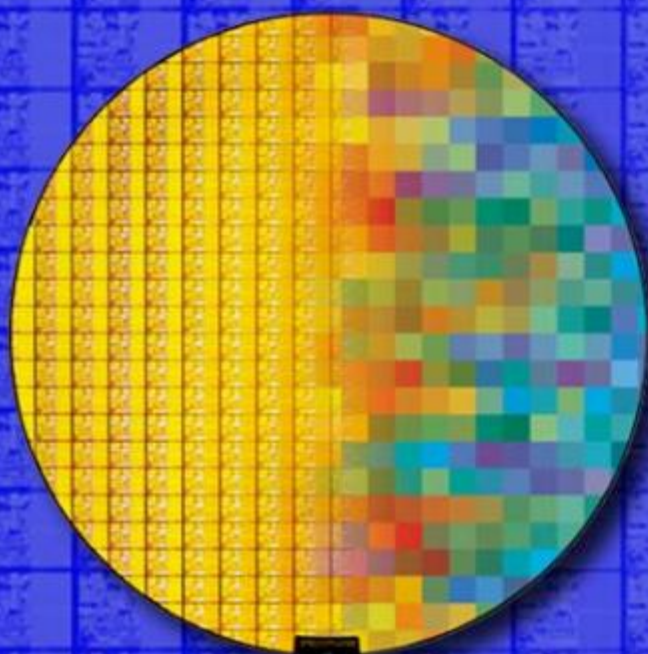


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# **The Mobile Era**

**Sean Maloney**

Executive Vice President and  
General Manager Mobility Group



# Notebook vs. PC



# Mobile Era of Semiconductors

Mobile Semiconductor TAM



# The New Mobility Group

**Phone Platform**



**Notebook Platform**



**Mobile Broadband Technologies**



# The Mobile Era in Phones

## *Worldwide Phone Lines*

Billion Lines



# The Mobile Era in Phones

## Worldwide Phone Lines

Billion Lines



# The Mobile Era in Phones

## Worldwide Phone Lines

Billion Lines

3.5

3

2.5

2

1.5

1

0.5

0

**1876:**

Invention of  
Telephone

Where Was It Easier  
to Display  
SMS Messages?

**1973:**

Mobile  
Phone

*Mobile*

Fixed

1890

1910

1930

1950

1970

1990

2010

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Source: CTIA, RHK

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# Transition #1: Phones Get Smart

*Network  
Speed*

1G  
2G

Voice/  
Text  
Phones

**\$25**  
of silicon

*Device Capabilities*

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# Transition #1: Phones Get Smart

*Network  
Speed*

cdma2000  
W-CDMA

Smartphone  
Sweet Spot

1G  
2G

Voice/  
Text  
Phones

**\$75**  
of silicon

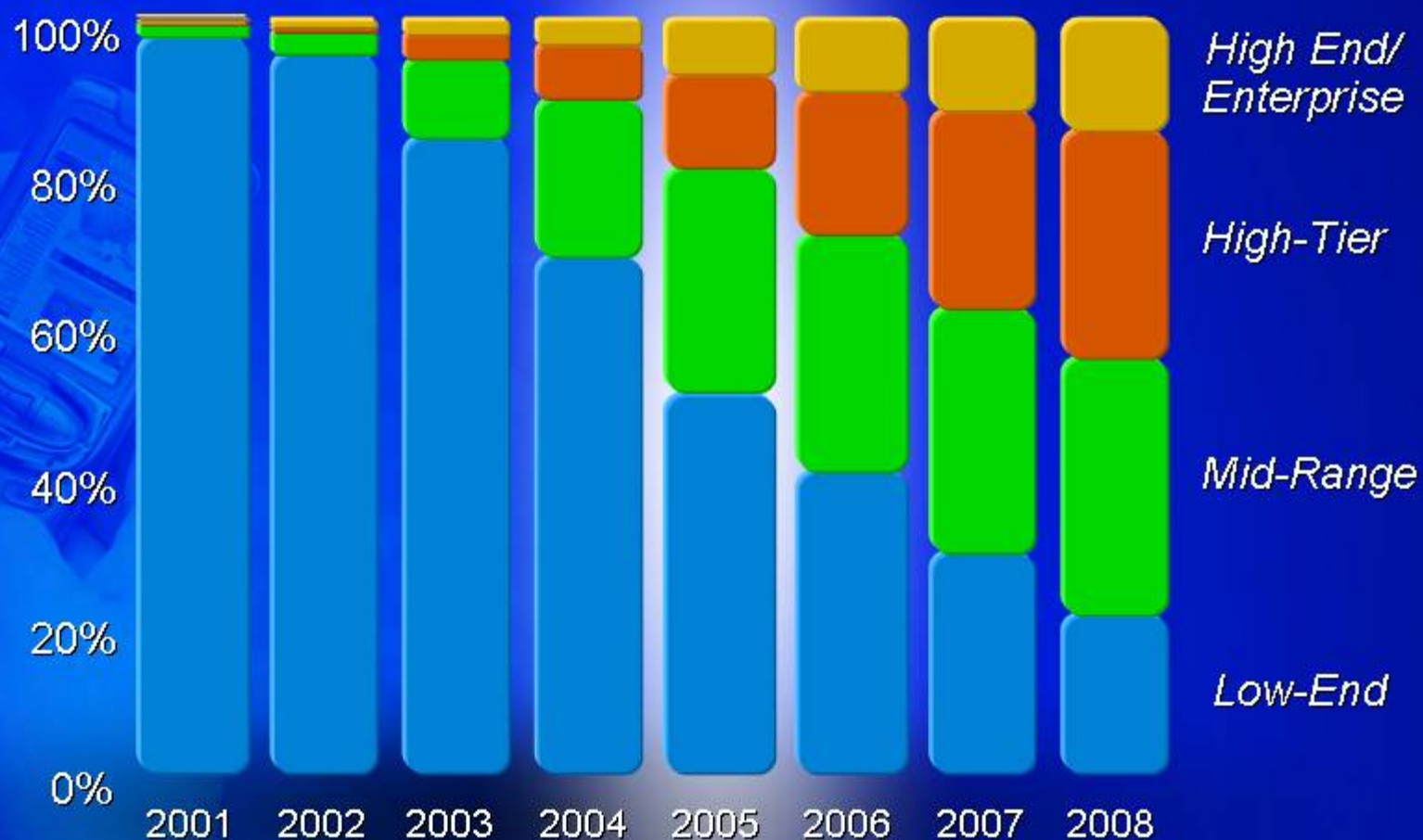
**\$25**  
of silicon

*Device Capabilities*

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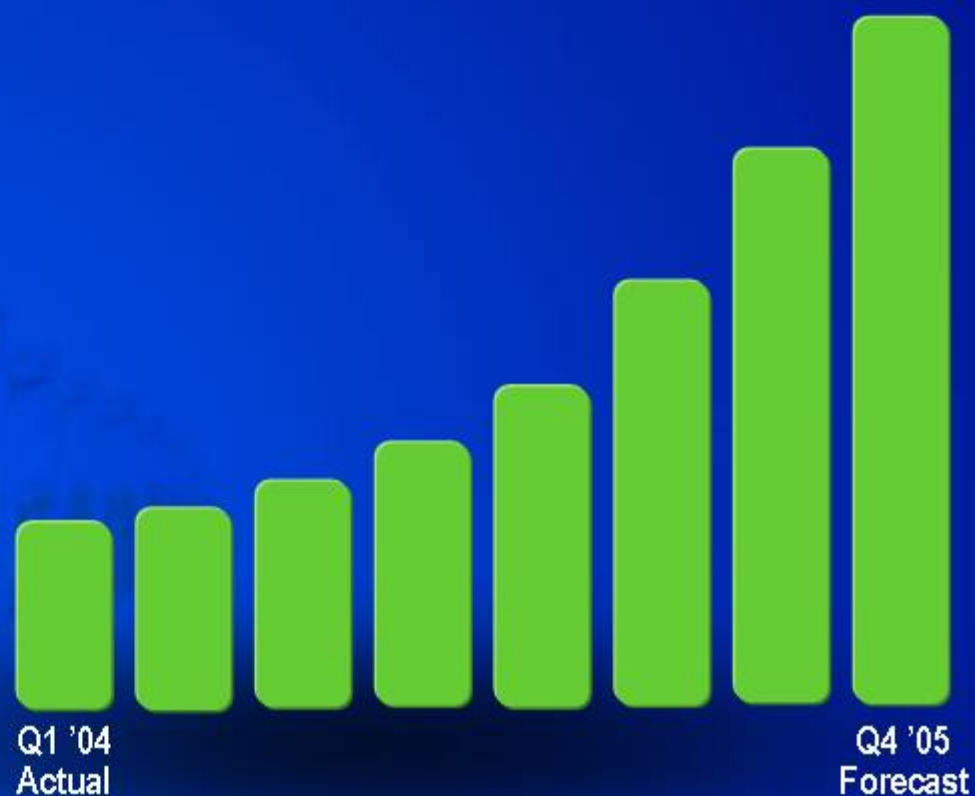
# Data Phones Overtake Voice Phones





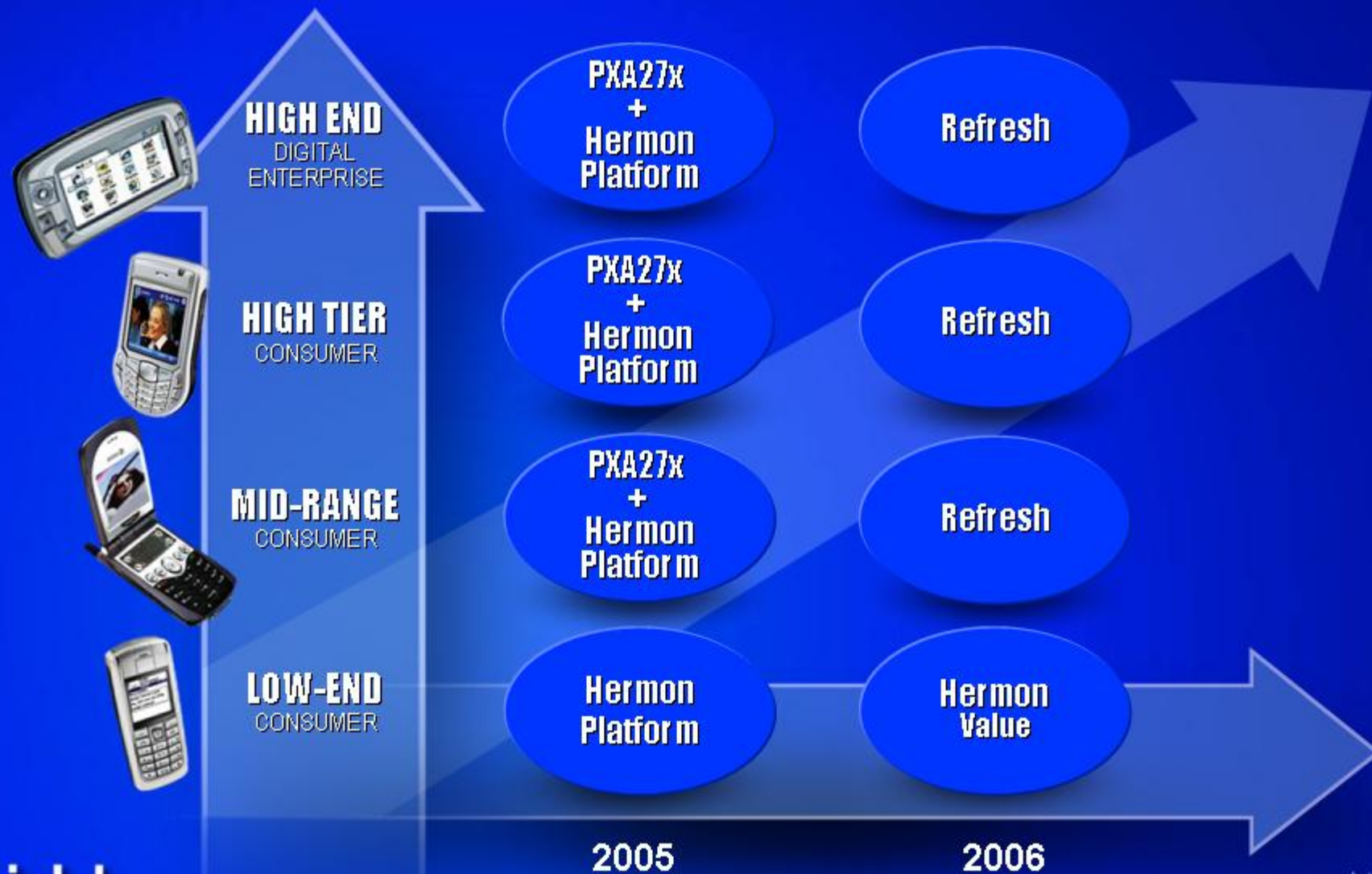
# Handset Processor Volume Ramp

Intel AP Units



# Intel "Top to Bottom"

in GPRS/EDGE/w-CDMA Handset Platforms



# Phone Customers



**LG Electronics**



**MOTOROLA**

**palmOne™**

**SAMSUNG**

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# Handset Port of Choice

symbian  
OS



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# Flash Memory Update

- A renewed focus on technology
- Announcing
  - **Sibley**  
90 nm MLC flash
  - **Sixmile**  
family of embedded flash products
  - **Naubinway**  
new flash file system for multimedia
  - Engineering samples of 65nm flash



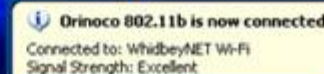
# The Handset and the Laptop



wireless network, select it from the list, and then click Connect.

Available wireless network(s):

WhidbeyNET Wi-Fi





# 1 Button Connect



# Transition #2: Computers Go Wireless

*Network  
Speed*

cdma2000 High-End Smartphone  
W-CDMA Sweet Spot

1G  
2G

Voice/  
Text  
Phones

**\$25**

of silicon

**\$75**

of silicon

Source: Gartner Dataquest, 2004

*Device Capabilities*

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# Transition #2: Computers Go Wireless

Network  
Speed



Notebook  
Sweet Spot

cdma2000 High-End Smartphone  
W-CDMA Sweet Spot

**>\$250**  
of silicon

1G  
2G

Voice/  
Text  
Phones

**\$75**  
of silicon

**\$25**  
of silicon



Source: Gartner Dataquest, 2004

Device Capabilities

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# The Mobile Era in Computing

100

Laptop Computer Shipments  
Units (M)

100%

0



WiFi  
Penetration

0%

intel.

Source: Gartner and Intel Estimates

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# Notebook Platforms

*Intel® Centrino™ Mobile Technology*

**2005** *Sonoma*

**2006** *Napa*



**Yonah:**

*Intel's 1<sup>st</sup> mobile dual core CPU*

**Calistoga:**

*Better graphics*

**Golan:**

*Better Wi-Fi*

# Technology Leadership

## PERFORMANCE

Intel® Digital Media Boost

## THINNER/LIGHTER

Intel® Advanced Thermal Manager

## WIRELESS

Intel® Smart Wireless Solutions™

## BATTERY LIFE

Intel® Dynamic Power Coordination



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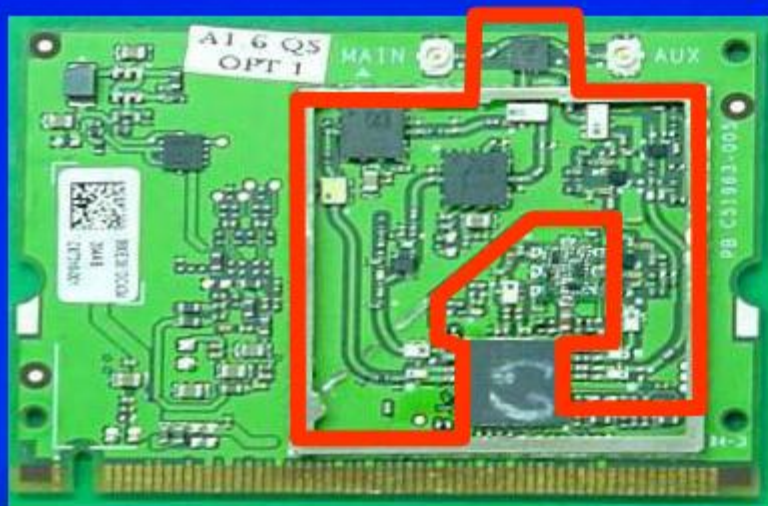
# The Incredible Shrinking Platform

*Enabling Smaller Intel® Centrino™ Technology Form Factors*

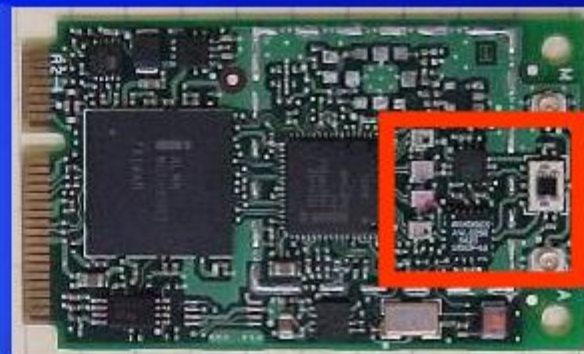


# Wi-Fi Improvements in Napa

*Current*



*2006 Platform*



- Optimized for battery life
- Manageability for multimedia
- Software that's easier to use
- Leading validation program



# The Notebook Ecosystem

**INTEL MOBILIZED  
SOFTWARE INITIATIVE**



**2003**  
**50**  
products

**2005**  
**250**  
products

**INTEL WIRELESS  
VERIFICATION PROGRAM**



**4K**  
hotspots

**57K**  
hotspots

**WIRELESS  
ISV ENABLING**



**NA**

**~1M**  
licensees

**INTEL  
CAPITAL**



\*Other names and brands may be claimed as the property of others.  
Hotspot Source: IDC Dec. 2004

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**First Rule of Mobility:  
Coverage is King**

# Wi-Fi in the Air



# Tivo 2 Go





# Land Rover Meets Centrino™ Technology



# Yonah

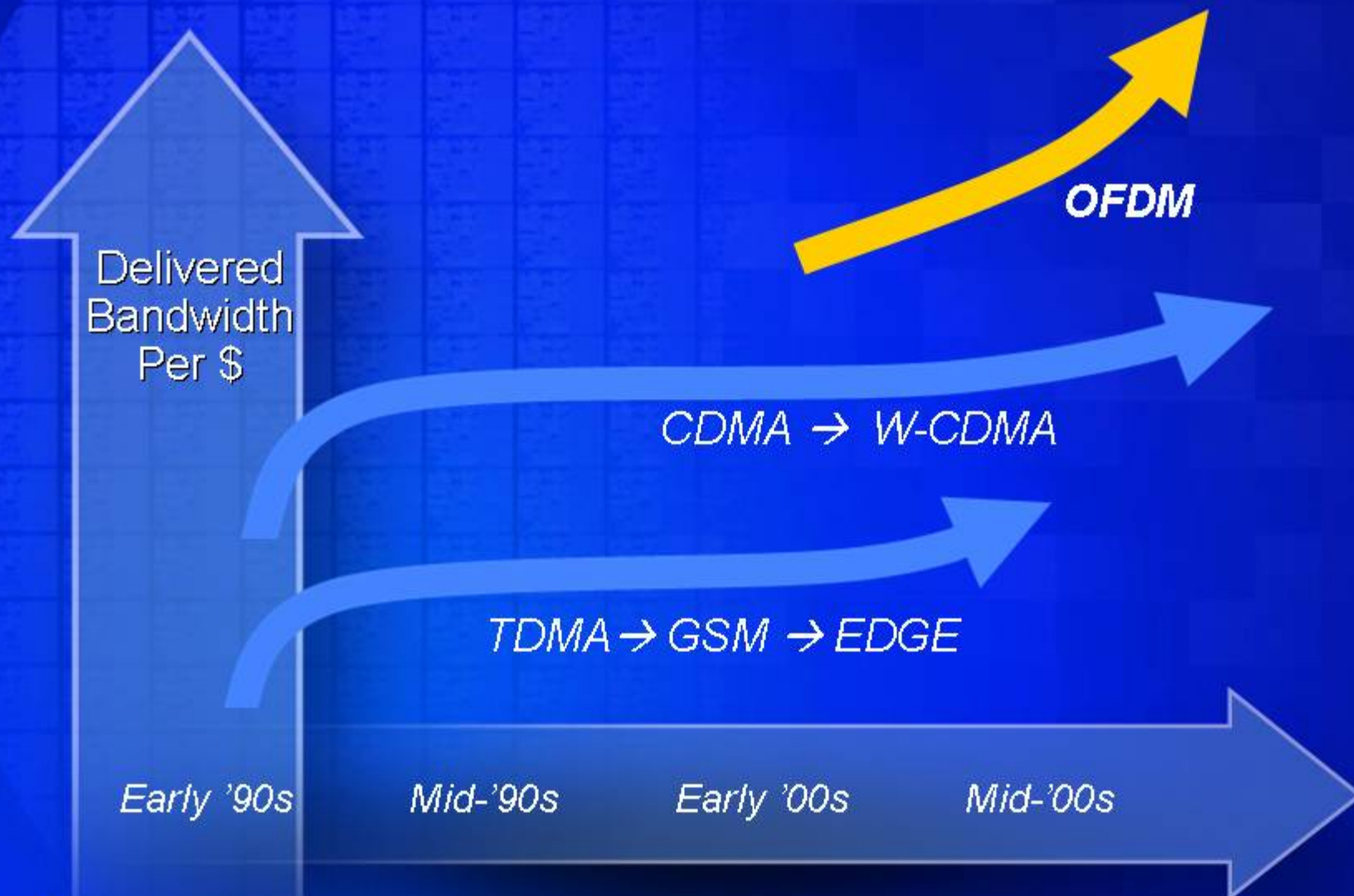


# What's Next?

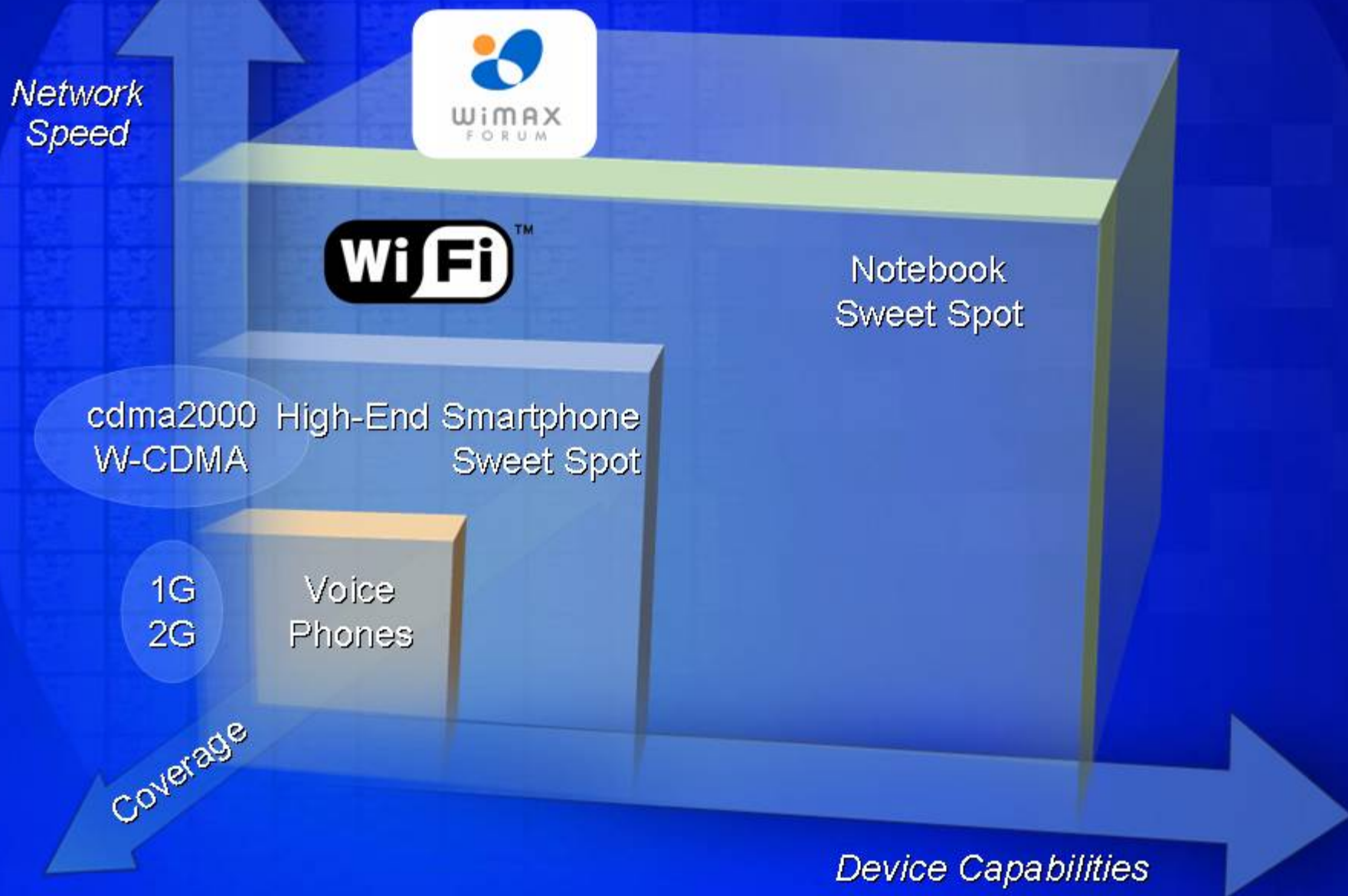
- WiFi =  
First, truly global wireless  
networking standard
- Global standards →  
Mass production →  
Low cost →  
WiFi everywhere
- WiMAX will be 1<sup>st</sup> truly global  
mobile broadband standard



# Fat Wireless Pipes



# Transition #3: Coverage is King



# Hyperbole

**hy•per•bo•le (hī pŭrbəlee)**

Speech, such as advertising or promotion, in which exaggeration is used for emphasis or effect



# Skepticism

**skep•ti•cism** *also* **scep•ti•cism** (skĕp'tī-sīz'əm) *n.*

1. A doubting or questioning attitude. 2. The philosophical doctrine that absolute knowledge is impossible and that inquiry must be a process of doubting in order to acquire approximate or relative certainty.

# WiMAX Is Moving

WiMAX Forum Members

- Ecosystem/Applications
- Service Providers
- System Vendors
- Silicon/Component Suppliers

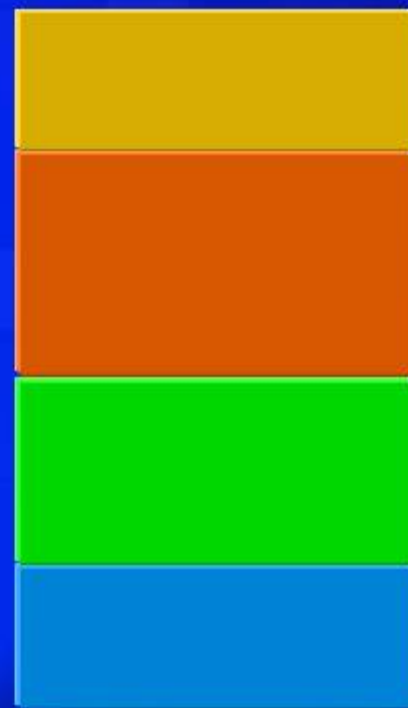
46



*IDF Spring 2004*



244



*Today*

# WiMAX is Moving

Estimated Engineers Working on WiMAX

*Less than 500 Engineers*

*Approaching 5,000 Engineers*

Components  
And Systems

**IDF Spring 2004**

Services

Networks

Components  
And Systems

**Today**



Source: Intel Estimates

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# Rosedale



# When We Started



# Last Year at IDF

A world map is shown in the background, centered on the Atlantic Ocean. The map uses a dark blue color for the oceans and a greenish-brown color for the landmasses. The continents of North America, South America, Europe, Africa, Asia, and Australia are visible. The map is slightly tilted and has a subtle glow effect.

2

Pre-Standard Carrier Trials



# Today at IDF

A world map showing the continents of North America, South America, Europe, Africa, Asia, and Australia. The map is illuminated with city lights, indicating a global network or activity. The background is a deep blue color.

15

Carrier Trials Underway  
802.16-2004 Networks  
Start

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# IDF 2006



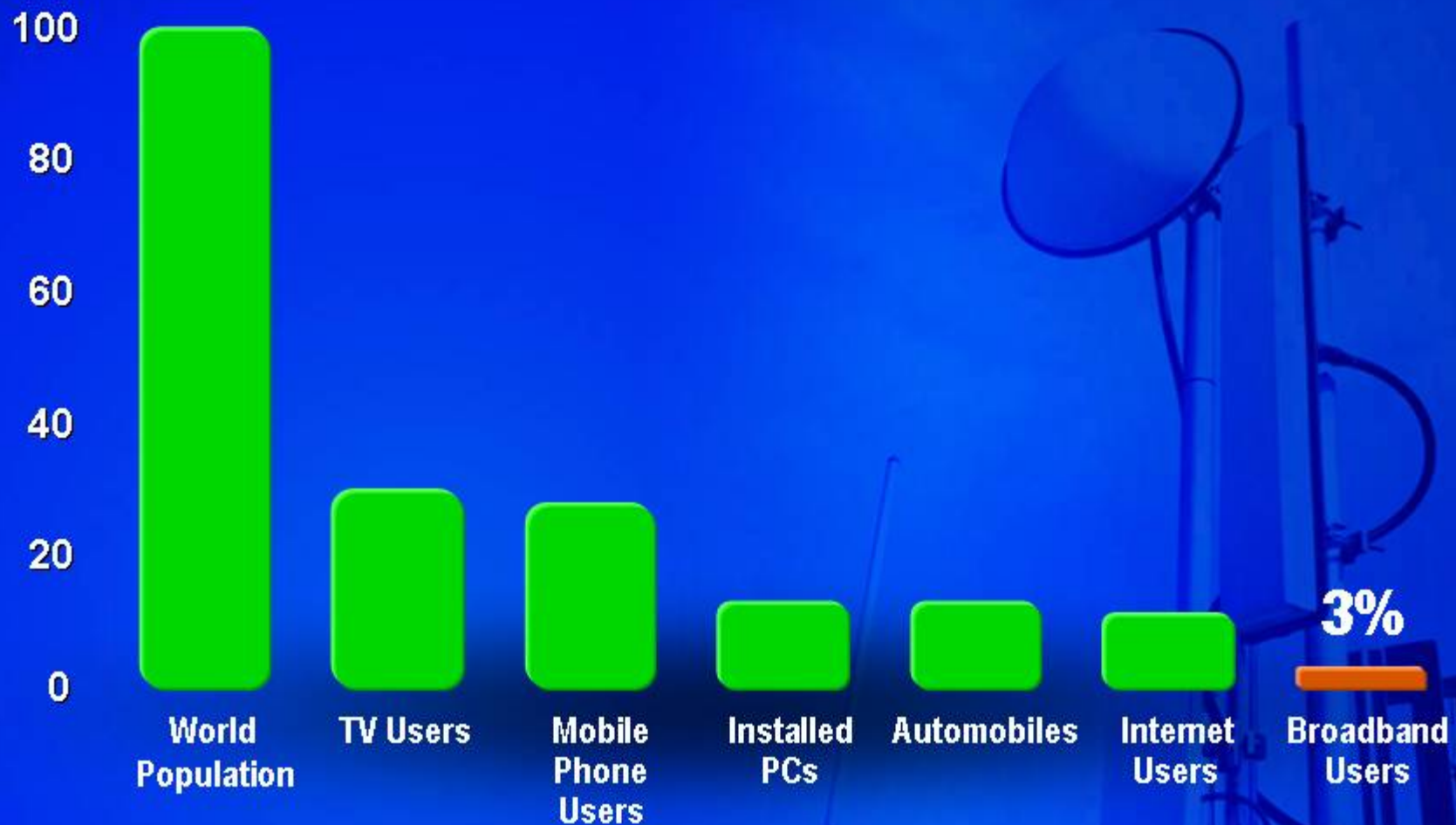
75

Carrier Trials Underway  
802.16-2004 Expansion  
802.16e Starts

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# Essentially, No One Has Broadband





# Mobilizing the IP Universe

3 Billion Pages

40 Million Person-Years of Effort

300 km of Shelf Space

# Mobilizing the IP Universe

## *Number of Users (Millions/Month)*

**4 Million**

U.S. Satellite Radio

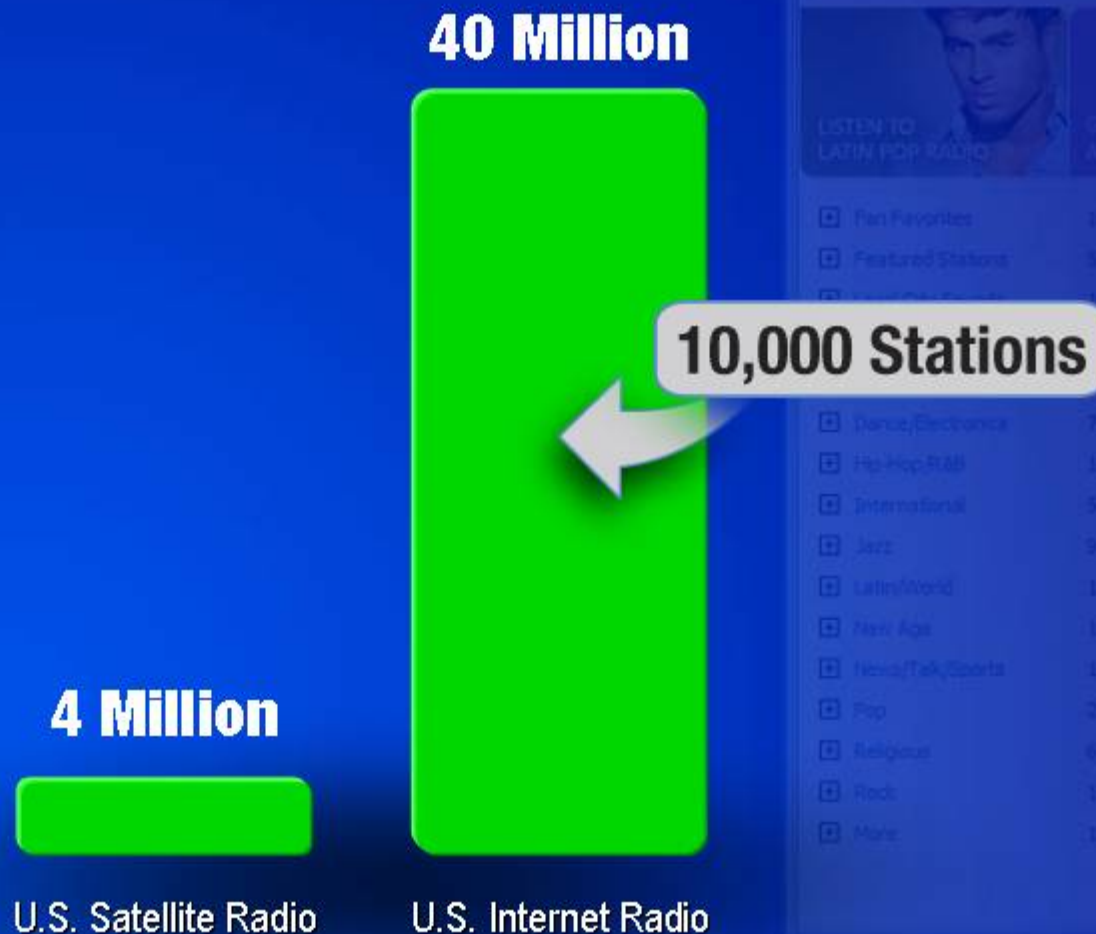


Sources: Sirius, XM Satellite; Chicago Tribune; IDC

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# Mobilizing the IP Universe

*Number of Users (Millions/Month)*





# Internet Radio



# WiMAX at Sundance



# Our Opportunity

What will be the mobile broadband equivalent of the

*Browser*

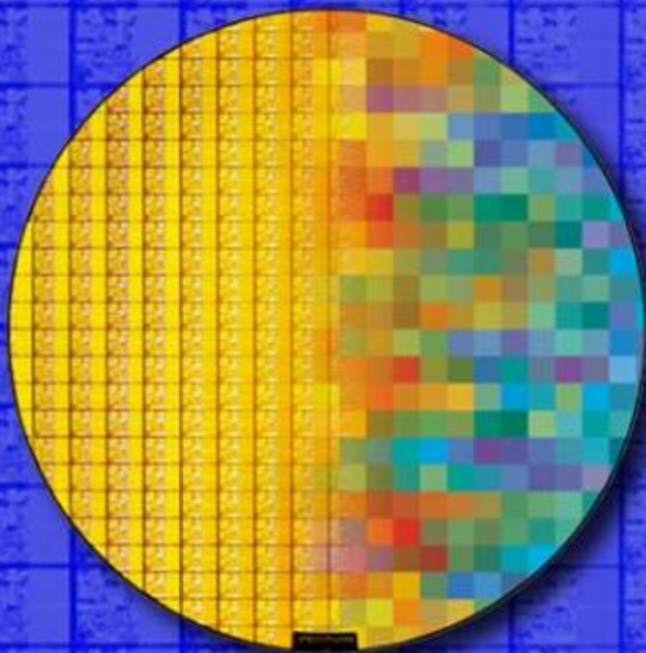
*Search Engine*

*Online Auction*

*Online bookstore*

Our chance to  
change the world  
**again**





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